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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/341,287	08/19/1999	JOHN G. WOODS	LC-302/PCT/U	4956
7590 02/07/2003			EXAMINER	
Loctite Corporation Legal Department 1001 Trout Brook Crossing Rocky Hill, CT 06067			WILSON, DONALD R	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 02/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/341,287	Applicant(s) WOODS ET AL.	
	Examiner D. R. Wilson	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-44 is/are pending in the application.
- 4a) Of the above claim(s) 29,30,32,33 and 38-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-28,31,34-37,42 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Reopening of Prosecution***

1. In view of the Appeal Brief filed on 12/9/02, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below for Claims 26, 43 and 44.
2. To avoid abandonment of the application, appellant must exercise one of the following two options:
  - (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 C.F.R. § 1.113 (if this Office action is final); or,
  - (2) request reinstatement of the appeal.
3. If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

***Previously Cited Statutes***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

***New Grounds of Rejection***

5. ***Claims 43 and 44 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.*** Claims 43 and 44 were added in the amendment of 1/14/02, Paper No. 15. In support of Claim 43, i.e., "--- the dihydroxyl-functionalized material has a number average molecular weight of up to about three times greater than the molecular weight of said dicarboxylic acid-functionalized material", applicant offered the following:

"Support for the dihydroxyl-functionalized material having a molecular weight of up to about three times greater the molecular weight of starting dicarboxylic acid-functionalized material is in Examples 1, 2 and 10 of the present specification and on page 9, lines 13-25, including the chemical formula, taken together with the description on page 12, lines 6-15."

"Support for the dihydroxyl-functionalized material having a molecular weight about the same as the molecular weight of the starting dicarboxylic acid-functionalized materials, i.e., that the

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dihydroxyl-functionalized material does not have any chain extended components, is on page 9, lines 13-25, including the chemical formula, taken together with the description on page 12, lines 6-15, of the specification."

Although the specification at pages 9 and 12 cited by applicant clearly contemplate the molecular weights being the same, if the molecular weight data in Example 10 is a number average molecular weight, then it is not seen that applicant has provided any teaching of how to conduct the hydroxyalkylation reaction without substantially increasing the molecular weight.

6. Applicant relies on the data for Examples 1, 2 and 10, to support that the number average molecular weight is up to three times greater, as in Claim 43, and that "--- the dihydroxyl-functionalized material has a number average molecular weight from about 2.7 to about 3.0 times greater than the molecular weight of said starting dicarboxylic acid-functionalized material", as in Claim 44. The following was presented as evidence supporting the claims.

"Example 10 states that the molecular weight of HTBN prepared according to Example 1, using CTBN with a molecular weight of 3,800, was found to be 10,400. Example 10 further states that the molecular weight of HTBN prepared according to Example 2, using CTBN with a molecular weight of 3,800, was found to be 11,300. Thus the molecular weight of the HTBN of Example 1 is 2.73 times (i.e., about 2.7 times) the molecular weight of CTBN. Similarly, the molecular weight of the HTBN of Example 2 is 2.97 times (i.e., about 3.0 times) the molecular weight of CTBN."

However, no where in the specification does it state the molecular weights of 10,400 (for Example 1) or 11,300 (for Example 11) are number average molecular weights, and other evidence suggest this cannot be the number average molecular weight. The Examiner bases this conclusion on the following observations.

a. The hydroxyl numbers for the polymers of Examples 1 and 2 are 22.2 and 21.4 mg KOH per gram of polymer, and the acid numbers are less than 0.1 mg KOH/g of polymer, indicating complete hydroxyalkylation of the starting carboxylic acid groups (specification page 27). The starting dicarboxylic acid-functionalized material is taught to have a functionality of 1.9 (specification page 20, lines 1-5). Hydroxyl numbers are known to be equal to the functionality times 56,100 divided by the number average molecular weight. Number average molecular weights for Examples 1 and 2 calculated from these hydroxyl numbers are about 4800 and 4980, respectively, which are substantially inconsistent with the reported molecular weights of 10,400

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and 11,300 presented in Example 10. One cannot have a dihydroxyfunctional polymer with the indicated hydroxyl numbers and a number average molecular weights of 10,400 and 11,300. The number average molecular weight calculated from the hydroxyl numbers are consistent with what might be expected from hydroxyethylation without any chain coupling, noting that the product is recovered from precipitation in methanol in amounts of 83 and 89 %, wherein some of the loss would be expected to be due to soluble low molecular weight material.

b. The starting number average molecular weight of the dicarboxylic acid-functionalized material is 3800, and with the quantity of hydroxyalkylating agent employed (about twice the stoichiometric amount for a single hydroxyalkylation of each carboxyl group) a tripling of molecular weight could not occur by multiple hydroxyalkylations at the chain ends. The only way to achieve number average molecular weights as are instantly claimed would require linking of polymer chains in the reaction with ethylene carbonate at a rate comparable to hydroxyalkylation for which there appears to be no known precedent.

c. In the synthesis of block resins, 56.34 g of the hydroxylated resin from Example 1 is used, which is stated to be 0.015 moles (specification, page 29, lines 33-36). This equates to a number average molecular weight of 3800 (grams divided by moles), clearly not 10,400 as alleged by applicant.

***Claim Rejections - 35 USC § 112, Second Paragraph***

7. ***Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*** There is no antecedent basis in Claim 23 for the hydroxyalkylating agent being a combination of a carbocyclic carbonate and a carbocyclic sulfite.

***Rejection Under 35 USC § 112, Fourth Paragraph***

8. The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

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9. ***Claim 26 is also rejected under 35 U.S.C. 112, fourth paragraph, for not further specifying a limitation of the subject matter in the parent claim.***

***35 U.S.C. § 103(a) Rejection***

10. ***Claims 23-28, 31, 34-37 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Admissions by Applicant, Merck Index, Wu and/or Yoshino, in further view of Wu or Yoshino.*** The basis of this rejection was stated in Detailed Action § 13 of the Office action of 10/3/00, and has been discussed further in Detailed Action § 13 to § 16 of the Office Action of 3/6/01, Additional Comments § 5 to § 8 of the Office action of 5/1/01, and Detailed Actions § 12-16, and § 8-12 of the Office Actions of 7/3/01 and 2/20/02, respectively.

11. ***Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Admissions by Applicant, Merck Index, Wu and Yoshino, in further view of Wu or Yoshino as applied to claims 23-28, 31, 34-37 and 43-44 above, and further in view of Admissions by Applicant.*** The basis of this rejection was stated in Detailed Action § 17-18 of the Office Action of 7/3/01.

12. In regards to the limitations of Claim 44, as noted above it is not seen that there is a clear basis for the molecular weight as claimed. Nonetheless, even if the number average molecular weight of the products of hydroxyalkylation is as claimed, then this would have been an inherent result of following the teachings of Okamoto in view of Admissions by Applicant, Merck Index, Wu and Yoshino, in further view of Wu or Yoshino.

13. It is pointed out that the Examiner has changed what was originally the Examiner's Notice to "Admissions by Applicant, Merck Index, Wu and/or Yoshino", although this does not change the substance of stated rejection.

14. Applicant's argument that the rejection of claims under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Admissions by Applicant, Merck Index, Wu and/or Yoshino, in further view of Wu or Yoshino, is "unclear, confusing and in part meaningless, and thus, improper", cannot be sustained. The prosecution history clearly shows that the rejection is based on the following being well known to one of ordinary skill in the art:

(i) to hydroxyalkylate the same polymers as in the claims with ethylene oxide (Okamoto),

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- (ii) that the disadvantages of using ethylene oxide as a hydroxyalkylating agent are well known (collectively or individually, Admissions by Applicant, Merck Index, Wu and Yoshino),
- (iii) that ethylene carbonate is known to be advantageously used as a hydroxyalkylating agent of carboxylic acids in order to overcome known disadvantages of using ethylene oxide (Wu or Yoshino), and
- (iv) that the use of a phase transfer catalyst in hydroxyalkylation reactions on carboxylic acids with ethylene carbonate is also well known (Wu or Yoshino).

15. Any further arguments presented in the Appeal Brief of 12/9/02 are not deemed to be persuasive for reasons of record.

***Future Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. R. Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.

D. R. Wilson  
Primary Examiner  
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